

## ABSTRACT

To provide a pulse tube refrigerator for enhancing refrigeration capacity. A pulse tube refrigerator includes a pressure-waveform generating device 1 for generating a pressure waveform of refrigerant gas, pulse tubes 14, 20 into which refrigerant gas with pressure waveforms flow, one of whose ends is adapted to a low-temperature end, and the other one of whose ends is adapted to a high-temperature end, cold accumulators 8, 10 for pre-cooling the refrigerant gas to be flowed into the pulse tubes 14, 20, a pressure-waveform phase controlling element having a buffer tank 23 communicating with the high-temperature end of the pulse tube 20, and controlling a pressure-waveform phase of the refrigerant gas for generating refrigeration at the low-temperature end of the pulse tube 20, and a vacuum heat-insulation bath 24 having a vacuum heat-insulation chamber 24w for accommodating the pulse tube 20. The buffer tank 23 is placed within the vacuum heat-insulation chamber 24w of the vacuum heat-insulation bath 24.